Via Electronic Mail: chris.treanor@mail.house.gov

March 19, 2007

The Honorable John D. Dingell, Chairman
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Waste Management (WM) is pleased to submit comments in response to your request for industry sector views on cost-effectively reducing greenhouse gas (GHG) emissions, and the design of a federal cap and trade program. As the nation's largest operator of municipal solid waste landfills and refuse collection vehicles, and a leader in waste-based, renewable energy production, as well as recycling, we recognize our obligation as an industry leader and environmental steward to develop technical solutions to reduce GHG emissions and to participate in the development of sound climate change policy. In keeping with this responsibility, we are working to voluntarily reduce our GHG emissions and help our customers to do the same.

WM's contributions to greenhouse gas reduction occur through:

1. *The destruction of methane gas emissions from landfills,*
2. *The operation of both landfill gas-to-energy and waste-to-energy plants that produce electricity and fuels to displace fossil fuel use,*
3. *Development of landfill gas to liquid natural gas conversion technology,*
4. *Development of bioreactor landfill technology that will allow the more effective collection and use of landfill gas,*
5. *Advancing technology for alternative fuel use and engine design to lower the greenhouse gas emissions from refuse collection and transport vehicles, and*
6. *Increasing the recovery of valuable materials through the nation's largest recycling program.*

Technical innovations within WM have produced significant GHG reductions. WM has documented direct and indirect emissions reductions totaling over 197 million metric tons of CO_2 equivalents – largely through the recovery and destruction of landfill gas, as well as from the generation of renewable energy. Our renewable energy projects create enough energy to power over 1 million homes, replacing GHG-releasing fossil fuels. To promote faster, more effective use of landfill gas, WM is a leader in the research,

development and demonstration of "next generation" landfill technology. Reducing GHG emissions through recycling, our wholly-owned subsidiary, WM Recycle America, recycled 5 million-plus tons of commodities in 2005, avoiding the release of more than 3.4 million metric tons of GHG emissions and saving more than 41 million trees through paper recycling alone[1]. WM operates one of the largest, natural gas powered, heavy-duty vehicle fleets in the nation – and we are looking closely at powering some of this fleet with alternative fuels, including fuels made from recovered landfill gas.

WM believes that the following principles should guide development of any federal program aimed at reducing GHG emissions.

- Any mandatory GHG reduction program should be market-based; incorporate flexible and robust GHG offsets trading programs that will promote real and verifiable GHG emissions reductions from across our society at the least cost; and recognize and reward early actions taken to reduce GHG emissions.
- Flexible trading programs will have the greatest direct, positive impact on the environment by allowing many sectors of the economy to contribute to GHG reductions. Such a program should recognize and promote, among other projects, GHG offset credits produced by renewable energy, methane destruction, and alternative fuels and recycling.
- Fair, efficient emission reporting rules should address all greenhouse gases and recognize net emissions and reductions on a life cycle basis. The carbon storage capability of landfills, the methane oxidation capacity of landfill cover, use of carbon-neutral biomass fuels and the avoidance of GHG emissions, e.g., through the generation of renewable electricity and through recycling should all be acknowledged.

Technology Innovation will be a Vital Tool for Reducing GHG Emissions

Beneficial reuse of renewable landfill gas is and will continue to be an important tool for reducing GHG emissions. As a leader in the research, development and demonstration of "next generation" bioreactor landfill technology to promote the more effective collection and use of landfill gas, WM strongly supported the Department of Energy's (DOE) Climate Change Technology Plan's focus on bioreactors as an important GHG reduction tool. We are committed to the development and adoption of bioreactor landfills as demonstrated by our joint work with the U.S. Environmental Protection Agency (EPA). We have engaged in a Cooperative Research and Development Agreement (CRADA) with EPA to determine which practices best promote the safe operation of large-scale bioreactor landfills, and we are participating in EPA's Project XL, an initiative that involves pilot projects to demonstrate superior environmental performance from using bioreactor landfill technology. WM is also very supportive of bioreactor development work DOE has engaged in with Yolo County and the Environmental Research &

[1] Conversion factors from Greenhouse Gas Emissions From Management of Selected Materials in Municipal Solid Waste, USEPA, September 1998, Exhibit 4-4

Education Foundation to develop and demonstrate bioreactor technology at the Yolo County, California and Northern Oaks, California landfills.

WM has recommended that DOE continue to focus a part of its climate change research resources on helping the private sector to fund work to demonstrate the potential of bioreactor landfill technology for reducing GHG emissions. Bioreactor landfills are expected to accelerate methane generation and facilitate its capture through improved collection systems and use of alternative cover materials to control fugitive emissions. DOE funding to demonstrate the Intelligent Bioreactor Management Information System (IBM-IS) for the control of fugitive landfill gas emissions from an anaerobic bioreactor landfill at Yolo County is an important first step. Continuing research on the design, construction and operational effectiveness of horizontal wells, permeable layers and other new gas collection systems would be very beneficial as would exploring reduction of methane emissions from old or small landfills.

The MSW Management Sector has Significantly Reduced GHG Emissions

Leadership in innovation within Waste Management has also spurred innovation and substantial GHG emissions reduction by the municipal solid waste (MSW) management industry as a whole. In order for the MSW management industry to fully understand the sector's GHG emissions and reductions, and provide reliable information to the legislative and regulatory communities and non-governmental organizations involved in shaping climate change policy, the National Solid Wastes Management Association (NSWMA) commissioned a study using a "life-cycle" approach for assessing waste management developed by the U.S. Environmental Protection Agency.[2,3,4] The study examined GHG emissions and reductions occurring for each waste management activity (collection, transportation, recycling/composting, combustion, and landfilling) over the past 30 years. The results of this effort tell a story of which the industry is proud.

The MSW management industry is a very small emitter of GHG, accounting for about one-tenth of one percent (0.1%) of total U.S. GHG emissions. The study showed that actual, net GHG emissions from all MSW management activities declined from about 60.5 million metric tons of carbon dioxide equivalents ($MMTCO_2E$) in 1970 to 7.8 $MMTCO_2E$ in 2003. This happened even as MSW disposal volumes in the U.S. grew from 121 million tons per year in 1970 to 236 million tons per year in 2003. If the MSW industry had not changed or improved the technologies it used in 1970, net GHG emissions would have been 127.5 $MMTCO_2E$. Significantly, the use of improved MSW management practices avoided the release of some 116.7 $MMTCO_2E$.

[2] Harrison, K.W., Dumas R.D., Solano, E, Barlaz, M.A., Brill E.D., & Ranjithan S.R., (2001) Decision Support Tool for Life-Cycle-Based Solid Waste Management, *Journal of Computing in Civil Engineering*, Jan.

[3] Weitz, K.A. (2005) Decision Support Tool Update to Current Conditions (2003), Research Triangle Institute, September

[4] NSWMA, (2005) Municipal Solid Waste Industry Reduces Greenhouse Gases through Technical Innovation and Operational Improvements

Fair, Efficient GHG Reporting Rules Essential to GHG Program Success

WM and the MSW management industry have already made great strides in reducing the release of GHG emissions. As the Committee continues its deliberations on the elements of a national greenhouse gas program, we urge the Committee to develop GHG inventory and offsets policies that recognize:

- Modern landfills sequester large amounts of biogenic carbon, destroy methane through landfill gas collection and landfill cover systems, and landfill gas to energy systems are significant sources of renewable energy;

- Waste-to-energy and open-loop biomass plants provide renewable "green" energy, and offset emissions from fossil-fuel derived electricity; and

- The recycling industry generates significant GHG emissions reductions and energy savings by beneficially reusing glass, paper, aluminum and other materials.

A number of international and domestic protocols including the Intergovernmental Panel on Climate Change (IPCC), the U.S. Environmental Protection Agency (EPA), the Oregon Climate Trust, and the California Climate Action Registry recognize carbon storage in land filled material as a sink in calculating carbon emissions inventories. These protocols recognize that when wastes of a biogenic origin are deposited in landfills and are not completely decomposed, the carbon that remains is effectively removed from the global carbon cycle, or sequestered.

For example, the EPA has published reports that evaluate carbon flows through landfills to estimate their net greenhouse gas emissions.[5,6] The methodology EPA employed recognizes carbon storage in landfills. In these studies of municipal solid waste land filling, EPA summed the GHG emissions from methane generation and transportation-related CO_2 emissions, and then subtracted carbon sequestration (treated as negative emissions). The projected national average of net GHG emissions for landfills was minus 0.02 MTCE/Wet Ton, showing that landfills are "carbon sinks" (USEPA 1998, Exhibit 7-6).

These same methodologies that recognize carbon storage in landfills are also employed by EPA in calculating the greenhouse gas emissions related to land filling hardwood, yard trimmings and food scraps for the Inventory of U.S. GHG Emissions and Sinks.[7] In EPA's inventory for 2003, landfills are reported to have nationwide methane emissions of

[5] USEPA 1998. Greenhouse Gas Emissions From Management of Selected Materials in Municipal Solid Waste. EPA 530-R-98-013

[6] USEPA 2006. Solid Waste Management And Greenhouse Gases A Life-Cycle Assessment of Emissions and Sinks, 3rd Edition, October 2006

[7] USEPA 2005. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2003. EPA 430-R-05-003

131.2 Tg CO_2 equivalents (Table 8-1). For the same year, reductions (storage) of carbon dioxide in the form of land filled hardwood and land filled yard trimmings and food scraps are reported to amount to 155 Tg CO_2 equivalents (Table 7-5) and 10.1 Tg CO_2 equivalents (Table 7-1) respectively. This demonstrates that by using EPA procedures and attributing carbon storage to the landfill, the national greenhouse gas footprint for landfills in 2003 was estimated to be minus 33.9 Tg CO_2 equivalents, or a net carbon sink

Life-cycle analyses of waste management practices offer further support for the premise that land filling biogenic carbon can result in net greenhouse gas reductions. EPA's Municipal Solid Waste Decision Support Tool (referenced previously), a life-cycle analysis tool that was developed to help communities optimize the environmental benefits of their waste management practices, as well as to support the EPA Climate Leaders program, includes a calculator for estimating the carbon storage potential of landfills.

In the course of evaluating the carbon flows within landfills, most methodologies discuss the inherent uncertainties and difficulties in developing a detailed landfill emission profile. The Intergovernmental Panel on Climate Change, EPA and academic studies alike, delineate the uncertainties associated with modeling estimates of waste composition and mass, methane generation potential, gas collection efficiency and methane oxidation that occurs in daily, intermediate and final landfill cover. These measurement difficulties coupled with the acknowledgement that carbon sequestration renders many landfills as carbon sinks, has resulted in many domestic and international protocols and programs either ignoring landfills as insignificant sources of GHG emissions, or treating landfills as sources of emissions reductions. We respectfully recommend that the Committee do the same as it contemplates a national market-based GHG cap and trade program.

Employing life cycle analysis in the assessment of the GHG emissions and reductions will also allow communities to identify the most cost-effective options for managing their waste, as well as the opportunities to promote GHG reductions through recycling and production of clean, renewable energy.

Further Stimulation of Private Investment is Key

The significant accomplishments in reducing GHG emissions from the MSW sector would not have been possible without the combined commitment of WM, the public and private organizations making up the MSW industry sector and the federal government to fund research and development of innovative technology and practices to improve environmental performance. Should the Congress develop a mandatory, market-based GHG emissions reduction program, WM recommends, in addition to federal research, the further stimulation of private investment and R&D through such highly successful tools as Section 45(d) of the Internal Revenue Code, which provides tax credits for development of technology to produce electricity from renewable resources.

One such example is landfill gas-to-energy where landfill gas is either combusted in an engine-generator to produce electricity or used as a fuel in gas-burning furnaces, turbines or engines. Tax credits for landfill gas recovery projects are very important to increasing and expanding landfill gas use, creating energy, and reducing GHG emissions. The Renewable Energy Business Alliance estimates that the Section 45 production tax credit in the Energy Policy Act of 2005 spurred approximately 50 new landfill gas energy projects, 250 MW of new capacity, and 1,498 new jobs. WM believes that extending the placed in service and payout period for the renewable Section 45 energy production tax credit, raising the credit rate for landfill gas to the rate of the other renewable energies, and creating incentives for the direct use of landfill gas will boost energy production from this clean, renewable resource.

Like landfill gas, waste-to-energy produces renewable power and avoids GHG emissions by replacing electricity production from fossil fuels. WM believes that waste-to-energy (WTE) should be eligible for inclusion in any renewable portfolio standard, and the GHG reduction attributes of each megawatt of electricity tradable, just as many states allow renewable energy attributes to be sold as renewable energy certificates (RECs). EPA and the Congress under the Energy Policy Act of 2005 classify WTE as a renewable energy source, because the waste that is combusted by WTE is primarily biomass, a renewable resource. WTE is a clean form of renewable energy. Under the Clean Air Act, WTE facilities meet very stringent air emission requirements using advanced control technology. According to EPA in 2003, U.S. waste-to-energy plants have shown "dramatic decreases" in air emissions, and produce electricity "with less environmental impact than almost any other source of electricity."[8]

Any Mandatory GHG Reduction Program Should Include a Flexible Trading System

Should Congress design a mandatory, market-based GHG cap and trade system, it should look to the successful Chicago Climate Exchange (CCX) system, which is the first and only voluntary GHG emissions reporting, cap and trading program operating in North America. WM is a founding member of the CCX, which is a multi-sector, transparent, rules-based and verifiable program. Participating in the CCX, we have learned to inventory our baseline emissions, develop offset projects, document reductions and work with third-party verifiers to certify and register offsets for trading.

Another key issue that Congress should address in designing a national GHG program is the need for policies that ensure a smooth transition from state and regional efforts to a federal approach, and to make certain that entities that have invested in GHG emissions reductions receive full credit for their beneficial actions. Congress should ensure that those entities already making voluntary reductions will be recognized and receive full credit for early action.

Finally, in developing a cap and trade program, Congress should include a robust, flexible GHG offsets program that achieves real, surplus, and verifiable emissions

[8] Horinko, M.L., Holmstead, J.R. U.S. EPA letter to Integrated Waste Services Association, February 14, 2003.

reductions in all six gases. A flexible offsets program offers the most cost-effective means to promote diverse compliance options. Flexibility should extend to the location of the offset projects (anywhere in the world), the type of offset projects (any that are surplus and verifiable), and the amount of offsets a regulated entity can use to achieve compliance with emission limits (unlimited).

WM appreciates the opportunity to share its views with the Committee and looks forward to working with you and all the Committee members as you consider options for reducing national GHG emissions. Should you have any questions, please feel free to contact me at 202-639-1218 or kkelly5@wm.com.

Sincerely

Carter Lee (Kerry) Kelly
Director of Federal Public Affairs